Serial Communications Boards

CYB 2232C

2-Port PCMCIA RS-232 Serial Card

USER'S MANUAL

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CHAPTER 1 HARDWARE GUIDE

Introduction

This chapter details the specifications of the CYB 2232C serial card.

CYB 2232C Card Features

* Two independent RS-232 Serial ports.
* Reliable communications up to 50 feet, 15m, and beyond.
* 100% 16C550 PC compatible serial port, up to 1 Megabaud.
  16950 Compatible FIFO provides 128-byte input and 128-byte output buffer on each port.
* Full modem control TXD, RXD, DSR, DCD, DTR, RTS, CTS, and RI signals.
* Fully double buffered for reliable asynchronous operation.
  High-speed integrated circuitry ensures operation with fast PCs, e.g., 500 MHz Pentium II.
* Fully Plug-and-Play.
* PCMCIA interrupt sharing.

Dimensions	2 x 3.3 in, 85x55 mm
I/O Connection:	Serial Port 1: 9-pin Male D type.
	Serial Port 2: 9-pin Male D type.
Weight:	16g

Configuring PCMCIA Cards

PCMCIA cards, by definition, require no hardware configuration and can be installed “directly from the box.”

Chapter 2 INSTALLING IN YOUR COMPUTER

This card is “hot plug” compatible it may be inserted into your PCMCIA type 2 slot when the machine is either off or powered on. Please refer to your machine user guide for detailed instructions on inserting a PC card.

CHAPTER 3 SOFTWARE INSTALLATION

Introduction

This section describes the software installation procedure allowing the CYB 2232C to be configured within the Windows 95 operating system.

Configuring Ports in Windows 95 and 98

Although covering the installation of the CYB 2232C cards into the Windows 95 operating system, the procedure is also valid, with only minor differences, in Windows 98. The Windows 95 environment now supports up to 255 standard serial ports, RS-232, RS-422, RS-485, etc.

Windows 95/98 Installation Procedures

- Insert the card into an available type 2 socket. This can be done even if the machine is powered ON.

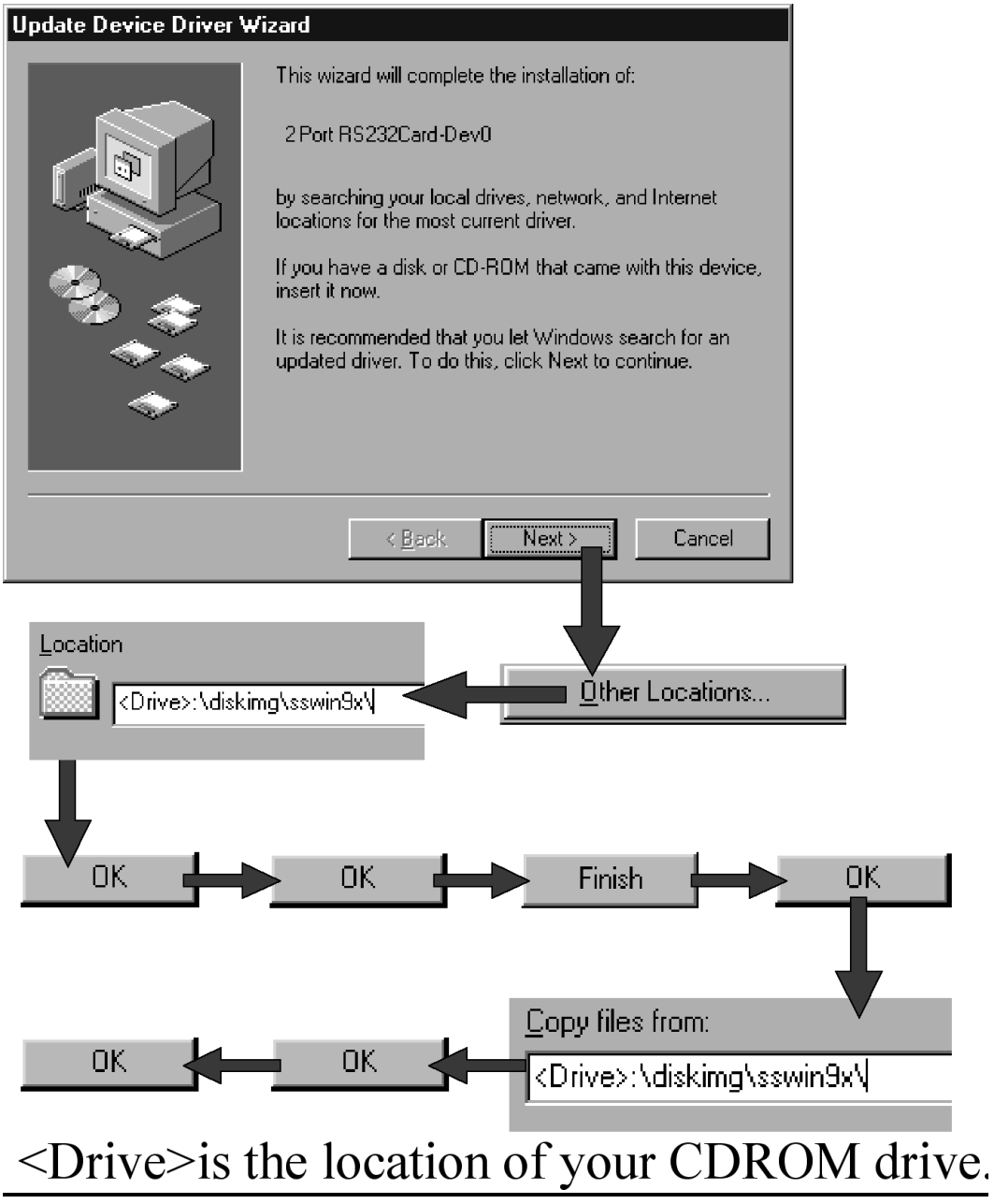
- If installing from a "power off" condition Windows 95 should then load normally. During the booting process, Windows 95 will detect the card and briefly display a message box indicating the detection process.

- Windows will then display the "**Update Device Driver Wizard**," requesting "**insert any disk which came with the card**." Insert the CD-ROM installation disk into an appropriate drive and click **Next** and follow the path laid out below.

Note: At present support is only offered for Windows 95 OSR2 and above.

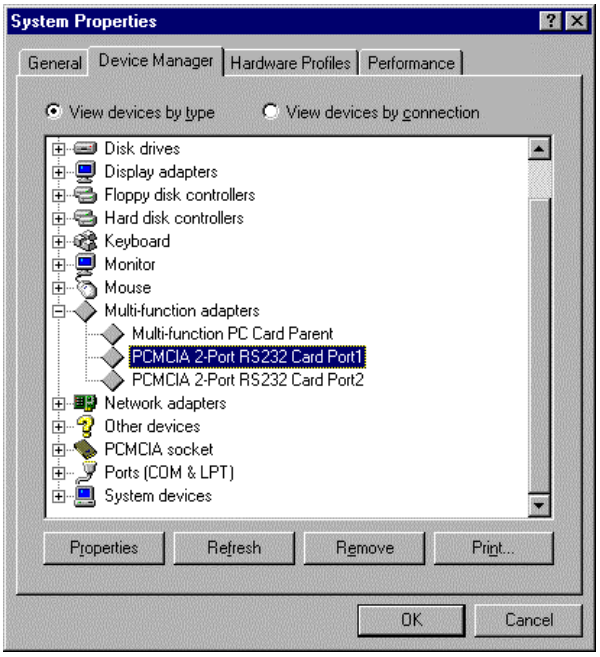
Figure 3-1 CD-ROM Installation Path

NOTE: This process is repeated for each of the two ports.

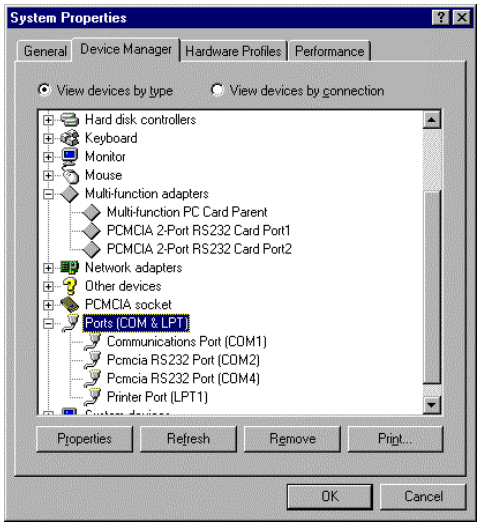

Update Device Driver Wizard
This wizard will complete the installation of:
2 Port RS232Card-Dev0
by searching your local drives, network, and Internet locations for the most current driver.
If you have a disk or CD-ROM that came with this device, insert it now.
It is recommended that you let Windows search for an updated driver. To do this, click Next to continue.
< Back
Next >
Cancel
Location
<Drive>:\diskimg\sswin9x\
Other Locations...
OK
OK
Finish
OK
Copy files from:
<Drive>:\diskimg\sswin9x\
OK
OK
<Drive>is the location of your CDROM drive.

PCMCIA Card Setup

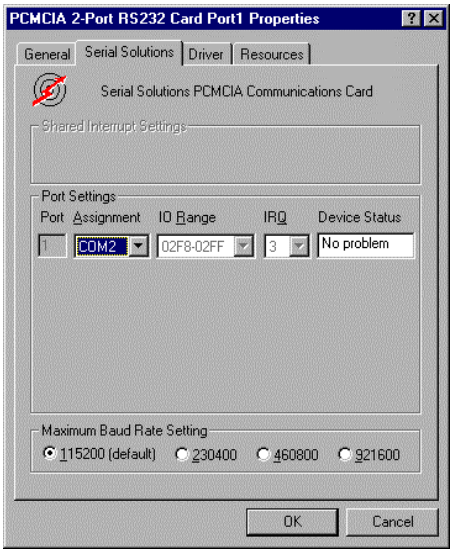
Installation in Win95 results in both functions on the PCMCIA card being treated as separate multifunction adapters with one port on each adapter. A multifunction parent card and two PCMCIA multifunction adapter cards (corresponding to each function on the card) can be found under the multifunction adapter section of the **Device Manager** (**System=>Properties=>Device Manager**).



The two ports (one associated with PCMCIA 2-Port RS-232 Card Port1 and the other with PCMCIA 2-Port RS-232 Card Port2) can be found in the **Ports** section of the **Device Manager**.



Double-clicking either port results in the display of four property pages: **General**, **Port Settings**, **Driver** and **Resources**. The **Port Settings** page allows any of the settings on the port to be changed.



CYB 2232C Port Settings In Win 95

Double-clicking upon an individual port entry in the **Device Manager**, and selecting the **Port Settings** tab will display:

Settings available in this window are:

Baud Rate.
Data Bits.
Parity.
Stop Bits.
Flow Control.

} Change to suit remote device.

Restore Defaults: When clicked, this will reset the selected port to the default values of:

Baud Rate:	9600
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	Xon / Xoff

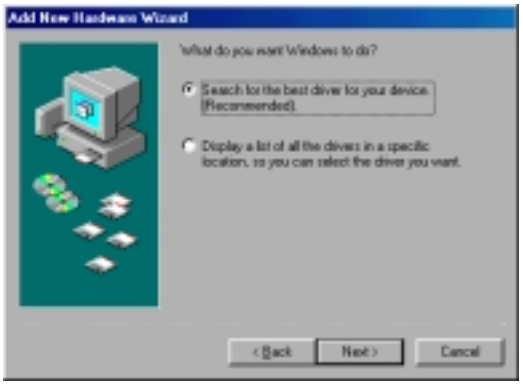
Note: To use a single port both ports must be open.

PCMCIA Dual RS232 Windows 98 Setup

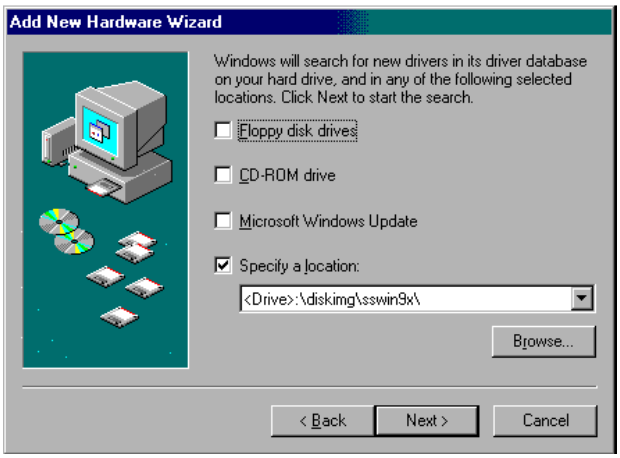
Upon installation of the CYB 2232C card the following dialog box appears on screen. The cards bus enumerator has found the first port and the device manager is searching for the installation software.

Add New Hardware Wizard
This wizard searches for new drivers for:
2Port RS232Card-DEV0
A device driver is a software program that makes a hardware device work.
< Back
Next >
Cancel

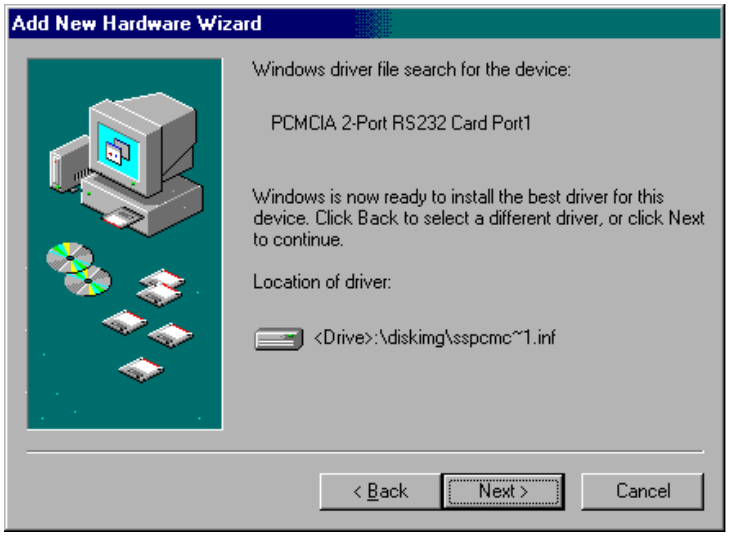
Click **Next**.


Add New Hardware Wizard
What do you want Windows to do?
Search for the best driver for your device. (Recommended).
Display a list of all the drivers in a specific location, so you can select the driver you want.
< Back
Next >
Cancel

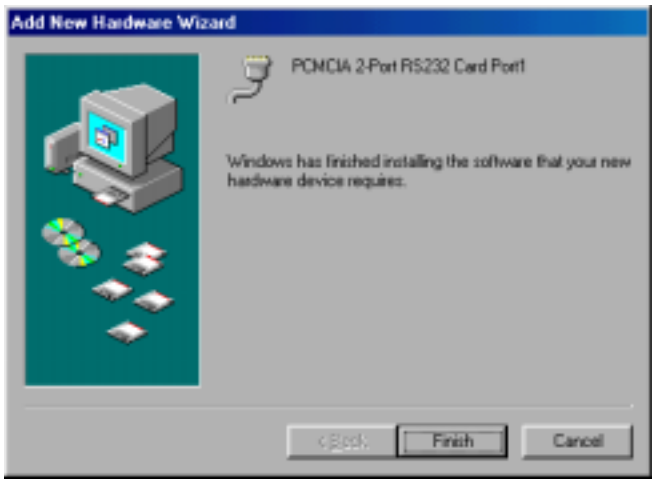
Choose the "**Search for the best driver for your device**."
Click **Next**.


Add New Hardware Wizard
Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.
Floppy disk drives
CD-ROM drive
Microsoft Windows Update
Specify a location:
<Drive>:\diskimg\sswin9x\
Browse...
< Back
Next >
Cancel

Select **Specify a location**.
Type **<Drive>:\diskimg\sswin9x**, where <Drive> is the letter of your CD-ROM drive.
Click **Next.**

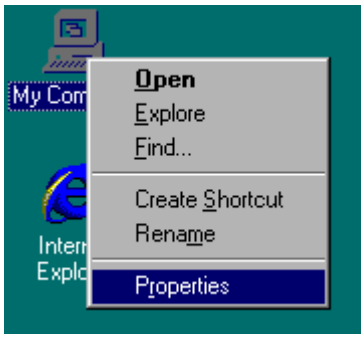

Add New Hardware Wizard
Windows driver file search for the device:
PCMCIA 2-Port RS232 Card Port1
Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue.
Location of driver:
<Drive>:\diskimg\sspcmc~1.inf
< Back
Next >
Cancel

Click **Next**.

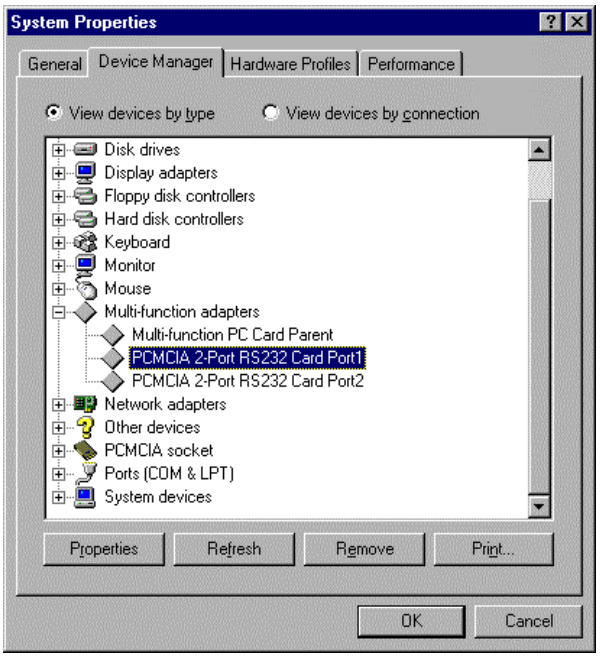

Add New Hardware Wizard
PCMCIA 2-Port RS232 Card Port1
Windows has finished installing the software that your new hardware device requires.
< Back
Finish
Cancel

Click **Finish**.

This process needs to be repeated to install the second port.
Right-click **My Computer** => **Properties** on the desktop.



Select the **Device Manager** tab.



See the Windows 95 port setting information, as this is the same as for Windows 98.

CHAPTER 4 RS-232 PINOUTS AND PORT CABLING.

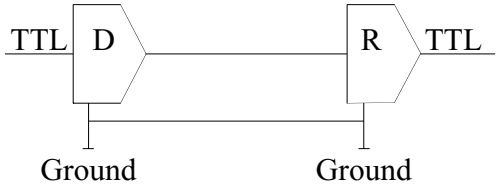
Introduction

This chapter gives details of the 9- and 25-pin RS-232 pin outs, cabling and connections, with information on how to connect the serial ports of two PCs and how to make a self-test loop-back connector.

The RS-232 Standard

RS-232 is a slow, short distance, single ended transmission system (i.e., only one wire per signal). Typical RS-232 maximum cable length is 50 feet with a maximum data rate of 20K bits per second.

Figure 4-1. RS-232 Point-to-Point Connection.



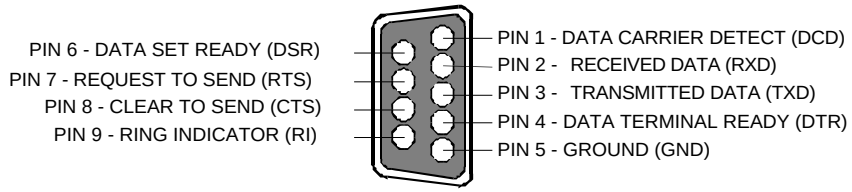
RS-232C Standard 1 Driver 1 Receiver	
Line Length	Max Data Rate
50 Feet = 15m	20 Kbits/sec

Serial Port Pin Outs

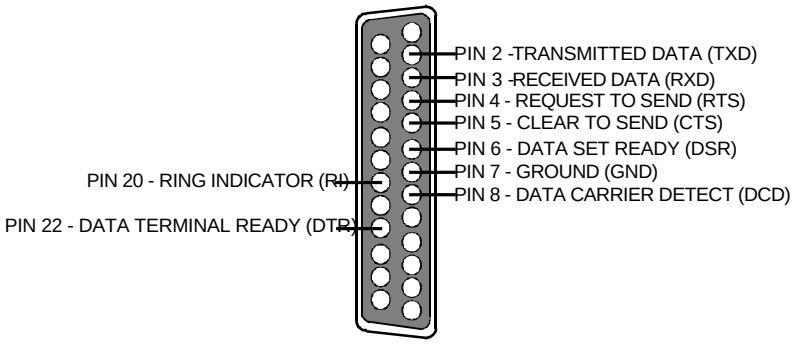
The pin outs of the 9- and 25-pin Male D connectors are given below.

Figure 4-2. Serial Port RS-232

9-Pin Connector:


PIN 6 - DATA SET READY (DSR)
PIN 7 - REQUEST TO SEND (RTS)
PIN 8 - CLEAR TO SEND (CTS)
PIN 9 - RING INDICATOR (RI)
PIN 1 - DATA CARRIER DETECT (DCD)
PIN 2 - RECEIVED DATA (RXD)
PIN 3 - TRANSMITTED DATA (TXD)
PIN 4 - DATA TERMINAL READY (DTR)
PIN 5 - GROUND (GND)

25-Pin Connector:


PIN 2 -TRANSMITTED DATA (TXD)
PIN 3 -RECEIVED DATA (RXD)
PIN 4 - REQUEST TO SEND (RTS)
PIN 5 - CLEAR TO SEND (CTS)
PIN 6 - DATA SET READY (DSR)
PIN 7 - GROUND (GND)
PIN 8 - DATA CARRIER DETECT (DCD)
PIN 20 - RING INDICATOR (RI)
PIN 22 - DATA TERMINAL READY (DTR)

9-Pin D Serial Port RS-232 Cables

To connect to the AT style RS-232 serial port like those found on the PCMCIA Dual card you will need a cable terminating in a 9-way female D connector. It is sound practice to use cables with screws fitted that will allow you to fasten the cable securely to the PC card.

In general, you will need to make up a “cross over cable” to correctly interface the PC to the RS-232 port of another computer or device. The cross over cable is simply to ensure that the right signals going out of one RS-232 port go into the appropriate lines of the other RS-232 port.

9-Pin D Serial Port Connection To Another PC

Suppose we want to connect the AT style 9-pin D serial port to the serial port of another IBM PC. See Figure 4-3.

1) Connect the earth lines.
   Line 5 of Serial Port 2 to lines 1 & 7 of the other PC.
   This gives the two devices a common earth level.

2) Connect the Transmit and Receive lines together.
   Line 3, TXD, Port 2 goes to line 3, RXD, of the other PC.
   Line 2, RXD, Port 2 goes to line 2, TXD, of the other PC.
   This allows each to receive data transmitted by the other.

3) Connect the Port 2 DTR line, pin 4 to the other PC DCD, pin 8 and CTS, pin 5, lines.
   Also, connect up the other PC DTR line, pin 20 to the Port 2 DCD, pin 1 and CTS pin 8, lines.
   This allows the receiving device to signal when it can no longer accept data. The receiving device sets DTR false when it is unable to receive any more data. The sending device reads DTR on its CTS and DCD pins. It should stop sending when CTS goes false.

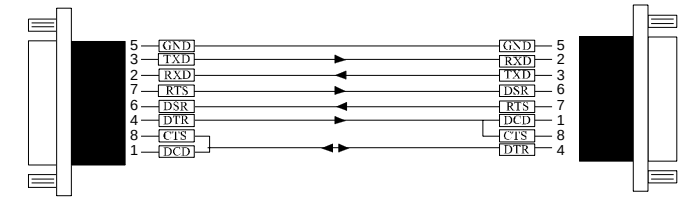
4) Connect the Port 2 RTS line, pin 7, to the other PC DSR line, pin 6. Also, connect the other PC RTS line, pin 4, to the Port 2 DSR line, pin 6.
   This RTS line is used to let the other device know that it is ready for data exchange.

Figure 4-3. 9 Pin D Serial Port to Other PC Cable.

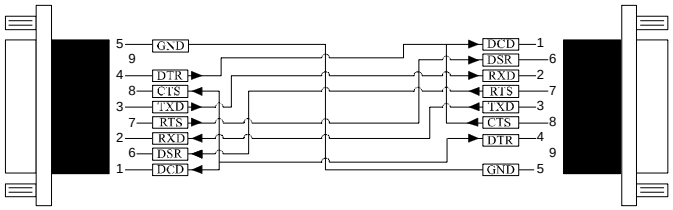
AT Serial Port Side
9-Pin D Connector

Other PC Serial Port Side
9-Pin D Connector

SCHEMATIC REPRESENTATION:



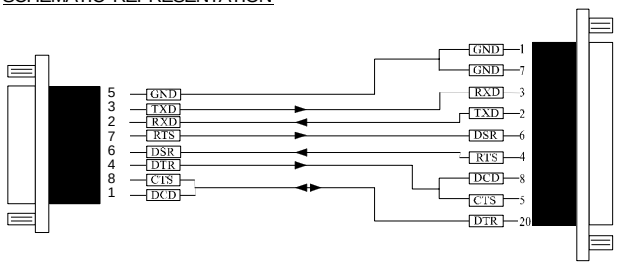
ACTUAL REPRESENTATION:



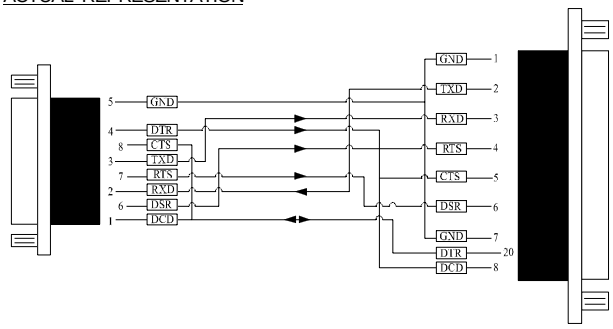
9-Pin D Connector

25-Pin D Connector

SCHEMATIC REPRESENTATION



ACTUAL REPRESENTATION



9-Pin D Serial Port to a Modem

If you are connecting a modem to a 9-pin D Serial Port then you will *not* need a cross over cable and a straight through cable connected as the 9- to 25-pin adapter given in Figure 4-5.

9-Pin D Serial Port Loop-Back Connector

A loop-back connector can be used to echo RS-232 data transmitted by a serial port back into its own RS-232 receiver. In this way, the function of the serial port can be tested.

For an AT style serial port use a female 9-way connector wired as in Figure 4-4.

Figure 4-4. 9-Pin D Serial Loop Back Connector

9-Pin D Connector *25-Pin D Connector*

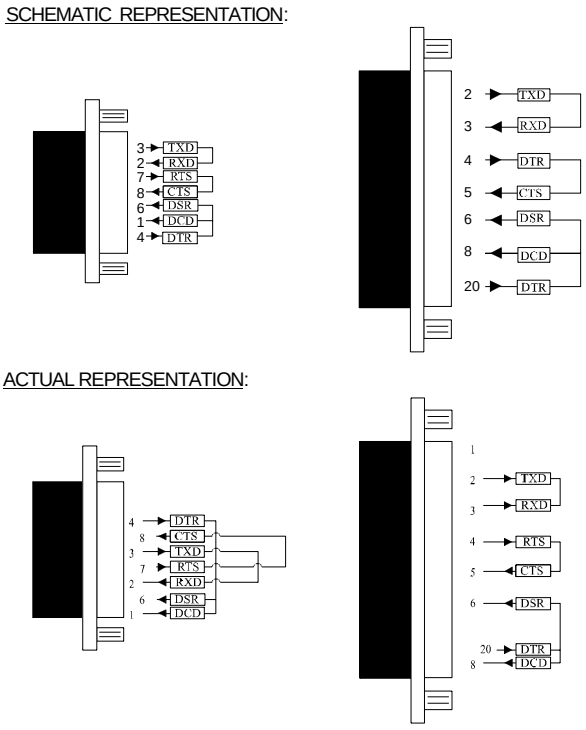
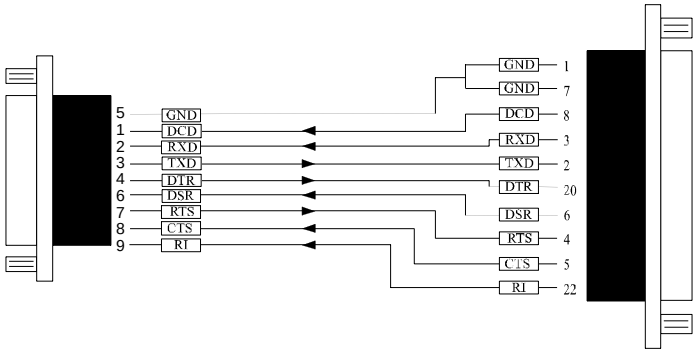


Figure 4-5. 9 To 25 Way Adapter

This adapter cable makes the AT style 9-pin serial port, look like the standard PC 25-pin serial port. It is *not* a cross over cable.

9-Pin AT Serial Port	*25-Pin PC Serial Port*
9-Pin Female D Connector	*25-Pin Male D Connector*

SCHEMATIC REPRESENTATION:



ACTUAL REPRESENTATION: